Market Analysis
Program (MAP)

Cross-Industry Markets 1988-1993

Education and Training Sector

INPUT®

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CROSS-INDUSTRY MARKETS 1988-1993

EDUCATION AND TRAINING SECTOR

INPUT®

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I

Introduction

I

Introduction

A

Overview

INPUT analyzes education and training as a vertical-industry and cross-industry professional service.

Cross-industry education and training includes all products and services that IS vendors sell to the government and industry, excluding products/services to schools and other educational institutions.

Education and training products, such as a training course available on remote processing or on a diskette to load into a microcomputer, are sold by an IS vendor to the education market for use in schools and are considered to be part of the vertical market of education. Education that occurs in educational institutions (i.e., schools) is forecast in the Education Industry-Specific segment, found in the INPUT report *U.S. Information Services Vertical Markets, 1988-1993*.

The market delivery modes considered as part of this report for IS cross-industry education and training will include:

- Processing Services
- Application Software for micro, mini, or mainframe computers
- Turnkey Systems
- Professional Services

For the purposes of this report, *education and training professional services* refers only to training on computers and to computing and management courses for IS professionals. Other modes, such as software and processing services, include training in noncomputer subjects delivered by means of computers.

This report covers only the cross-industry segment of the education and training market.

IS education and training can be examined in terms of the following services:

- Classroom or live instruction
- Multimedia and interactive video
- Computer-based training (CBT), which includes computer-assisted instruction (CAI) and computer managed instruction (CMI)
- Self-study

B

Industry Trends

Industrial America is fast reaching the point where information technology touches every member of the workforce. In spite of all of the computer-related training conducted over the past thirty years, a great deal remains to be done.

Both professional and blue-collar workers can be expected to be exposed to several types of training from IS vendors. One type of training will concern using computers for specific job functions. The second type will involve computers to train workers in procedures, techniques, and new systems. The third will be to adjust to computers as part of the work environment.

- Complex new procedures in factory automation will be taught to workers through simulation and other computer-based techniques.
- Training programs on the operation of complex financial and manufacturing systems are now being provided on computers.
- The computer will become the primary means of communication requiring related training.

Information technology training emphasized the information systems professional until the mid-1980s. The shift toward user training that started in the late 1980s will continue and expand in the 1990s.

- The knowledge level required by users will continue to grow as users become more self-reliant.
- The rapid change in information technology will necessitate continuous retraining.

1. Classroom or Live Instruction

Live classroom training makes up approximately 50% of the training market. In the classroom training mode, about 60% is off-site and 40% on-site.

When a new technical area (such as network integration) or a functional or management subject (such as merchant banking) must be addressed, the easiest method for gaining knowledge is often to hire a consultant to provide live training or to send the user to a seminar or class on the subject.

Although there has been an expansion of the use of IVI, CBT, and multimedia training, the value of live instruction remains fully recognized.

- Many corporations are examining the use of live instruction to provide training in areas where it is important to have group interaction or immediate feedback.
- Live instruction provides the fastest response to a new training requirement.
- Live teachers can offer on-the-spot feedback to students, explain the course material, and provide meaningful changes.
- Live instruction has become more popular than CBT and IVI in teaching interpersonal management skills where group interaction is an important part of the course.

There is a great deal of competition among vendors of live instruction. Barriers are low and many smaller companies spring up that specialize in a single course or a specific topic.

- The majority of classroom companies are small, and under $10 million in revenue.
- Live training or lecturing is the easiest mode for a small firm when entering the business.
- Live training remains the easiest way for a software vendor to provide training.

2. Multimedia and IVI

This area has expanded during the last five years through the introduction of interactive video (IVI) technology. Basically, it uses video instruction and adds an interactive phase. Respondents are questioned on information and a tailored response is given on video, by the computer, or on audio.

This form of training has been used successfully in sales and management as well as technical training. IVI is being used in a number of very specific technical areas such as equipment maintenance.

Retention of course material has been shown to be high when students actively take part in the instruction, as in the interactive video area. The course seems to have a greater impact when the response is tailored to the answer given by the student.

IVI has proven effective, has lower cost, and is safer in a number of areas. When using an IVI course to study the effects of hazardous materials in the workplace, chemical spills do not have the disastrous results that live handling can have. The video portion of IVI can replace the requirement to have an actual piece of equipment for maintenance training. The repair process can be simulated through video sequences controlled by the computer. The government has begun using IVI to train tank pilots in simulated war exercises. Quality of pilot training improved because there were no tracks on the ground left by previous students. Pilots had to rely on their own knowledge. Another advantage was no accidents when the drivers hit real objects.

3. Computer-Based Training.

Computer-based training (CBT) refers to any training activity in which computers are used either to a) present material to be learned, b) provide practice activities or tests on material presented through other media, or c) manage the administration of courses using computers. For the purposes of INPUT forecasts, CBT includes CAI (computer-assisted instruction) and CMI (computer-managed instruction).

CBT is a large growth area for vendors that use computers to deliver or aid in the delivery of instruction for technical and semitechnical skills.

CBT is being used to teach a variety of skills, including information systems, software applications, and management capabilities. The management capabilities area covers project management, resource allocation, personnel dynamics, and human resources.

The future uses of CBT cover a wide range of topics; CBT will experience increases in training end users in systems and procedures (e.g., tellers, clerical workers, mechanics, and repair people). CBT systems can be used to present text, graphics, practice activities, simulations, and questions; CBY can also provide feedback.

The advantages of CBT include:

- Reduced costs of providing instruction
- Increased flexibility in presenting instructional material
- Convenience
- Uniformity

CBT has been proven to be the best training delivery process for training a user how to operate a specific system.

CBT courses are normally used at terminals connected to a mainframe (or minicomputer) at either a vendor's location or an in-house data center. CBT is also commonly distributed on diskettes for use with microcomputers.

Microcomputer applications software has been a fast growth area in this sector. The end user is not inclined to read the technical manual, but will learn through doing, especially in a controlled CBT environment.

Factors stimulating the market include the declining cost of computer systems and software, the availability of microcomputers in large numbers, and the tremendous need for hands-on computer training.

The ever-increasing access to computers, especially PCs, makes CBT a natural delivery environment for training. The user is comfortable with the PC and thus is willing to learn.

Although growth will be strong in this delivery mode, there is real concern that dedicated systems may duplicate other multipurpose computer systems that are coming into place, especially microcomputers. The real growth will be in the use of existing PCs and networks for CBT.

Some companies are trying a combination of CBT and video tapes to train their nontechnical staffs or end users. Education and training may also be delivered on PCs that users have on premises.

A growing number of firms have offered CBT-authoring systems to allow users to write their own custom CBT training courses. Both mainframe and PC-based systems exist and are in use.

- The Phoenix System from Goal Systems is one of the most popular of these authoring systems, and is available for both mainframe and PC use.

- Some firms develop their own materials based on previous training experiences or the knowledge of specialists who have been hired for that purpose.

- The learning curve to develop successful CBT is substantial and has created a preference for vendor-developed products.

End-user courseware is sold in two forms—packaged and custom. Packaged courseware has become very popular due to the cost-effectiveness of its delivery.

4. Self-Study

Self-study makes up approximately 15% of the education and training market. Of this percentage, about one-third is captive study on product-specific programs, and two-thirds are generic instruction related.

A number of new techniques for self-study have emerged, including cassettes for busy executives to play on car audio systems and material developed for presentation on VCRs and home computers. Cassette programs are available that will supplement the tutorials available with software packages.

C

Driving Forces

Forces affecting the need for education and training include many of the same forces that have been acting for years as computers and computing become increasingly a part of everyday life.

- Technology is advancing so quickly that many experts must continually take courses. Training never stops for today's IS professional.
- Program or project specialization will drive many people to investigate further instruction to understand technology and effectively use it.
- An increasing number of people without computer literacy must be able to use computer or interpret output as part of their jobs. To add to their individual output, these people must have a basic understanding of how the computer works and the limitations and advantages of using computing power. Once training of these people starts, it is likely to continue for a number of years.

The ever-increasing sale of information technology direct to the user is causing vendors to strengthen their support services, one of which is training and education.

- Training can prove to be a competitive advantage in today's market.
- Training may prove to be the key to a successful implementation. It is more important than many advanced product features in building a reputation for a software product.

D

Vendor Issues

Vendors are now being called upon to offer their clients many different types of training and education that will specifically address the user and the type of information to be learned. The method of teaching a factory floor system can be quite different from learning how to effectively manage people.

Vendors are trying to differentiate themselves from the multitude by adding additional value to their products in terms of customization of courses and professional services. These professional services take the form of consulting and evaluation to help set up the training program and continual evaluation of courses and users as they progress through the program.

E

User Issues

In the early 1980s, one of the main goals of education and training was to become computer literate. Today the main thrust has been using that computer literacy to become more productive. The increasing sophistication of applications requires an in-depth knowledge of the application rather than mere computer literacy.

Teaching basic computer literacy has not gone away, but has moved to the shop floor level of the end user. People on the production floor and in the warehouse are becoming involved in the computerization of the factory.

The issues facing the training staff are increased by multiple levels of end users, each with a different level of comprehension. It could conceivably take two or more methods of instruction to inform all the end users of a new manufacturing or general-ledger system.

Selecting the right form of instruction to meet the needs of the user is one of the new issues facing the trainer. Different levels of users start with different functional knowledges of the system, and each group has its own perspective of how the system will interact with group responsibilities.

- The executives need to be instructed in the functions of the system and what they can realistically expect from the system.

- The managers need to know more intimate details of the interaction of the functional areas involved.

- The user is most concerned about learning what to do to make his or her area work properly and get a job done.

All of these issues must be addressed by the trainer in developing the most efficient, learning-effective, and cost-effective method of training. The trainer needs to incorporate the efficiencies of IVI and CBT with the individualized instruction of classroom training.

The selection of a courseware vendor or a training program is just as important as the mode of delivery. Some vendor offerings are meant to be standalone systems to teach specific courses; others are part of a much wider and comprehensive system of training. The breadth of CBT course

offerings, as well as the need for administration of CBT programs, has led to the creation of training programs in how to train the trainer and in training systems evaluation being offered by vendors as a preface to the actual courses.

II

Market Forecasts

II

Market Forecasts

The initial goal of end-user training was to develop computer literacy: a basic awareness of computers, skill in operation of computer systems and software, and an ability to adapt new technology to business needs on an ongoing basis. End users are increasingly interested in more-advanced training, in areas ranging from specific applications to management training and stress management.

Information Systems (IS) education and training will be showing significant growth during the next five years to support this increased use of automation. Until recently, the emphasis has been on training or educating technical IS professionals in new skills. The emphasis has been shifting toward the training and education of end users, secretaries, managers, and executives in IS skills. This newer segment will drive growth for the next five years.

INPUT estimates that user expenditures for cross-industry education and training contracted from outside vendors will reach $4.9 billion in the U.S. in 1993. This is a 16% average annual growth through 1993, increasing from $2.3 billion in 1988 to $4.9 billion in 1993.

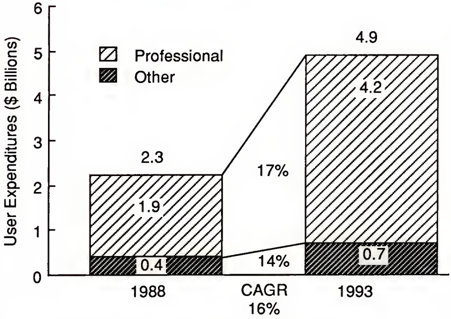
This market is dominated by professional services firms that control over 80% of the other delivery modes. Processing Services, Application Software Products, and Turnkey Systems provide the rest, about 12%.

A considerably larger expenditure for training by the in-house staff is not included in this forecast. Only the services or applications purchased from outside vendors are counted. Some of these services will be purchased for use by internal training people to develop or present courses.

Market size and growth rates are shown in Exhibits II-1 and II-2.

EXHIBIT II-1

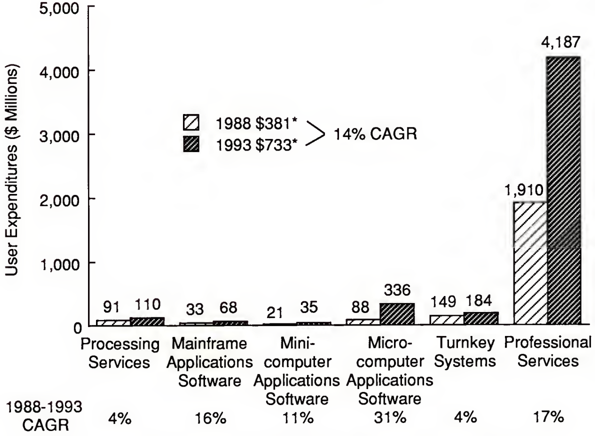
EDUCATION AND TRAINING SECTOR MARKET FORECAST CROSS-INDUSTRY INFORMATION SERVICES 1988-1993*



* Includes professional services, not formally reported in this forecast; professional services are reported by vertical market segment.

EXHIBIT II-2

EDUCATION AND TRAINING SECTOR GROWTH 1988-1993



* Total user expenditures ($ millions), not including professional services

The processing services portion of the forecast is changing in character due to the tendency toward PCs for much of the training. An exception is the inclusion of training on existing mainframes and the downloading of training programs to minis and micros. An example is the bulletin-board-like programs in factory-level services, equipment problems, and software training. This area will experience market growth and may even show some decay over the next few years.

In the applications arena, the trend is toward training performed on workstations. The bulk of the work is in the user oriented area, drifting to user programs with occasional help from the IS training staff. The largest growth will be at the workstation level as the workstation's role in the network expands.

There also appears to be a flattening of the turnkey market as the demand for standalone dedicated systems reduces the demand for interconnected microcomputers and video.

There is a small but emerging segment in which professional services are provided to audit, organize, and even facilitate management training programs. Although small, the segment may prove to be a competitive advantage for vendors that provide this service.

The consolidated numbers for cross-industry education and training and the associated professional services show continual growth, but not quite as rapid as seen in the past. The 1987 forecast was for a 19% five-year growth rate versus this year's 16%.

Workstation software will experience the fastest growth, rising at a 31% compound annual rate (CAGR) that surpasses the rate of mainframe software, traditionally the largest computer-based training delivery mode (with a 16% CAGR).

Professional services for education and training—which includes consulting, live instruction, and participative video instruction—is by far the largest delivery mode, totaling $1.9 billion in 1988 and increasing to $4.2 billion by 1993, reflecting a 17% annual growth rate. Professional services firms, including "Big 8" firms, are more numerous and contribute the greatest amount of market revenue to this delivery mode.

Appendix A contains data for market sizes by delivery mode for each year between 1987 and 1993.

III

Competitive Developments

III

Competitive Developments

Recently several vendors providing authoring packages have started providing a full-service program. This program consists of visiting the customer's company, assessing the training needs of the company, and helping the customer build a training program that will be custom-tailored to the needs of the company and the knowledge of the people who will be receiving the instruction.

One company suggests that enrollees in a course be tested for their level of competence before taking the course. The individualized courses are then geared to the student.

The recent merger of Deltak Training Corporation and Advanced Systems, Inc. into a new company, Applied Learning International, indicates that consolidation is required for success in training as well as in other information services industry sectors. Applied Learning's parent, National Education Corporation, has now acquired Spectrum Interactive.

Due to rapid changes in technology, many companies have been emphasizing technical training. Many managers view management training as "an extra that's nice to have."

The thesis in the large companies that have been promoting technical training is that the correct use of technology will promote productivity and that training is essential to this goal.

Recently it has also become evident that IS managers need more knowledge of functions within their companies (such as manufacturing, accounting, and marketing), as well as skills in managing and working with people and stress management.

- Business courses are now being introduced that can be tailored to the specific needs of a corporation.

- Courses are also being developed (to a considerable extent by new, small firms) that address interpersonal skills and managing IS personnel.

The director of education and training found it much easier in the past to address a limited range of technical courses. Today there is a vast array of technical courses that can be delivered in many ways, as well as a number of offerings that deal with management training. The trainer also has the option today to use outside experts to advise on course material, and to use in-house knowledge to actually develop the course using authoring.

The suppliers of training for IS personnel and end users vary in the products they deliver and the merits of these products. The major sources of training are computer systems and software manufacturers, training (professional) services firms, training package vendors, and in-house resources. Each of these sources has value.

- Computer systems and software vendors have concentrated on providing courses on their products and in areas related to their products.

- The professional services training vendor has concentrated on how to train.

- The in-house resources know the company, IS department, end-user needs, and applications. Using authoring packages, these in-house people are now able to help train others in the skills they have learned.

The education and training marketplace has become quite complex, however, since many vendors are entering or expanding their product offerings.

- Computer systems vendors, including IBM and DEC, obtain substantial revenues from education and training. Other computer systems vendors have become aware of the opportunity and are attempting to increase earnings in this marketplace.

- Some computer systems and software vendors have increased their education/training offerings to address not only computer systems and software products, but also general technical or management subjects such as communications, project management, human resources, and other management areas.

- Applied Learning has entered the training facilities management business.

A listing of the leading vendors for authoring systems and courseware offerings is shown in Exhibits III-1 and III-2.

EXHIBIT III-1

EXAMPLES OF AUTHORING SYSTEMS

Authoring System	Vendor
Microcomputer-Based	
Authority	Spectrum Interactive
Educator	Spectrum Interactive
Scholar/Teach	Boeing Computer Services
WISE	Wicat System
Quest	Allen Communication
Sam	Learncom
Phoenix	Goal Systems International
Mainframe-Based	
Plato	Control Data Corp.
Phoenix	Goal Systems International
Scholar/Teach	Boeing Computer Services

EXHIBIT III-2

REPRESENTATIVE VENDORS OF COURSEWARE

Microcomputer-Based

- Wicat Systems
- Goal Systems International
- Boeing Computer Services
- Control Data
- Learncom
- Applied Learning International
- Intelligence-Cdex

Mainframe-Based

- Crwth Computer Courseware
- Goal Systems International
- Boeing Computer Services
- Applied Learning International

Multimedia Training

- Applied Learning International
- Spectrum Interactive
- SRC

- The IS consulting practices of Big 8 accounting firms are expanding their roles in training and education and view this field as a significant revenue opportunity.

Appendix B includes profiles of major training companies Applied Learning and Goal Systems. It must be noted that no one firm dominates this almost-$5-billion sector.

- Applied Learning, at over $200 million, is the largest IS training company.

- IBM's training offerings are the largest, but are tied to their products.

- Most software companies receive 5-10% of their revenues from training and education.

- Goal Systems is the leading vendor of authoring systems, with about $30 million in related revenue.

The market remains open to new entries, is competitive, and the buyer is cost-conscious.

IV

New Opportunities

IV

New Opportunities

Introducing and measuring the effectiveness of management-oriented training has become an additional challenge for IS management. One of the new offerings that has been added to management courses is aid in measuring the effectiveness of the courses and selecting or tailoring the use of future courses. There is also a growth area for industry customized training that will use a mixture of methods to simulate situations and test solutions. Much of this situation simulation is in the defense area, where training simulators are used to mimic real-life situations and train people in choosing the best solutions.

In view of the proliferation of educational and training products, a few vendors offer guidance services to courses and other materials for the data trainer. Wicat's SMART (System for Managing Authors, Resources, and Training) provides effective management through student administration, user administration, course administration, and data collection and management. Other expanded offerings include bulletin board services, toll-free hotlines, and user groups.

There will also be an integration of technical and nontechnical training (as in project management training) that will draw on technical knowledge to solve project management problems.

The costs of internal use of CBT and IVI development systems remain a road block to expanded use. It still takes too long to create new training; thus the requirement is satisfied through live instruction. The opportunity remains to create easier-to-use CBT authoring systems.

V

User Issues and Directions

V

User Issues and Directions

A

Major Issues

Many of the major issues facing today's trainer are the long-standing ones of providing the best education and training for their companies, using the most up-to-date and effective methods, and justifying their area as part of the company plan for Information Services.

The trainer today finds selecting the proper training method is not an easy task; there are so many vendors and methods in the market that choices are not clear. Vendors provide training on every subject imaginable and in any form. If there is no standard package that provides the training in the desired delivery mode, a vendor will develop that course of study for the company.

B

IS Budget

The IS budget remains a constrained opportunity for training vendors. IS is cost-conscious; although generally supportive of training, IS must spread the budget over expanded requirements. Recent studies have shown that the education and training budget makes up 3-5% of the total information services budget for organizations giving training a high priority. Otherwise the budget is closer to 2%.

Growth in training budgets, as in overall IS expenditures, is being driven by user budgets as well. Factors include:

- Increased use of computers to train workers in procedures, techniques, and new systems
- Worker training in new, complex factory procedures through simulation
- Operational training on complex financial and manufacturing systems provided with computers
- A continuing emphasis on self-study, employing both product-specific and generic programs

- Demand for multimedia and IVI training in management and technical arenas
- CBT systems, which provide increased flexibility and uniformity of training material while reducing the cost of instruction
- The installed base of PCs, which encourages their use for training

Despite continuing demand, some budget categories are expected to decline.

- Demand for network-supported training systems will lessen.
- Demand for mainframe software, the traditional computer-based training mode, will grow only moderately.
- Turnkey demand is being reduced by less demand for standalone dedicated systems.
- A lower rate of budget growth is expected for professional services in response to the increased use of self-contained training programs.
- Evident diffusion of planned expenditures for products, services, and turnkey systems will occur as vendors merge and begin to specialize in specific market segments.
- Indications are strong that users will decrease the size of their in-house training staffs and attendant long-term support costs in favor of short-term vendor-provided training personnel and self-taught instruction systems.

Although the transition to newer automated systems as well as the integration of existing resources and newer equipment is expected to increase dramatically over the next several years, there is an historic wait-and-see attitude in the education and training arena. Some users suggest that the type of training to be provided will change to emphasize end-user requirements rather than those of the IS personnel. The near-term extent of these changes may not be apparent until mid-1989.

The factors that would cause users and IS organizations to increase their 1989 budgets include:

- Ongoing ADP equipment replacement programs to counter competition
- Initialization of new programs delayed by the financial shortfall after the October 1987 crash
- Implementation of software products that can replace older custom software that is becoming too expensive to maintain

- Increased utilization of expanded and high-speed networks that require management
- Improvement in the international balance of payments that would signal increased opportunities for international competition that would require early ADP investment to retain or improve competitive positions.

C

Objectives and Plans

The training companies are adding the value-added services of consulting to evaluate needs and training management programs that are assisting the trainer. The training vendors are also providing more of their courses in a variety of delivery modes that can be chosen by the training department to suit the individual company and user needs.

VI

Summary

VI

Summary

The training and education market has continued to diversify into a wider range of delivery methods with the advent of IVI, linear disk, CBT, and authoring packages. The earlier provision of principally technical courses in programming has expanded into the development of courses for every computer-related subject and the use of computers to deliver non-computer-related information, such as project and stress management.

Vendors are asked to provide multiple delivery methods to tailor the delivery method to the user, the user's knowledge base, the course material, and the company's preference for delivery mode.

CBT and IVI will continue to expand as delivery methods because they combine cost-effectiveness and efficiencies in retention of course materials. These areas, combined with self-study, will provide the flexibility that live training lacked.

Another growth area for vendors will be the provision of guidance services for the training department. These services will take the form of tools to assist in the introduction of courses, measurement of their effectiveness, and assistance in the development of courses tailored to the requirements of the company and the end user.

ET-A

Appendix: Forecast Data Base: Education and Training

ET-A

Appendix: Forecast Data Base: Education and Training

This appendix contains the following forecast information:

- Market size by delivery mode for 1987-1993
- Market growth rate for 1987-1993
- Compound annual growth rate (CAGR) for each delivery mode for the five-year period 1988-1993

EXHIBIT A-1

EDUCATION AND TRAINING SEGMENT USER EXPENDITURE FORECAST BY DELIVERY MODE, 1987-1993

Segmentation by Delivery Mode	1987 ($M)	1987-1988 Growth	1988 ($M)	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	CAGR 1988-1993 (Percent)
Processing Services	88	3	91	95	99	103	107	110	4
Applications Software									
Mainframe	27	20	33	38	44	52	60	68	16
Mini	18	13	21	23	26	30	32	35	11
Workstation/PC	61	46	88	116	152	199	259	336	31
Total Applications Software	106	33	142	177	222	281	351	439	25
Turnkey Systems	143	4	149	157	165	172	178	184	4
Cross-Industry Total	337	13	381	429	487	556	636	733	24
Professional Services*	1,600	19	1,910	2,234	2,614	3,059	3,579	4,187	17

*Education and training professional services data are not included as part of the total for the education and training segment because they are included as part of the professional services segment, and broken out by vertical markets.

EXHIBIT A-2

EDUCATION AND TRAINING SECTOR FORECAST USER EXPENDITURES BY DELIVERY MODE, 1987-1993

(In Millions of Dollars)

Sector by Delivery Mode	1987 ($M)	Growth 1987-1988	1988 ($M)	1989 ($M)	1990 ($M)	1991 ($M)	1992 ($M)	1993 ($M)	CAGR 1988-1993 (Percent)
Total Education & Training Sector	337	13	381	429	487	556	636	733	14
Processing Services	88	3	91	95	99	103	107	110	4
Transaction Proc. Services	88	3	91	95	99	103	107	110	4
Systems Operations	0	NA	0	0	0	0	0	0	NA
Network/Electronic Information Services	0	NA	0	0	0	0	0	0	NA
Electronic Information Services	0	NA	0	0	0	0	0	0	NA
Network Applications	0	NA	0	0	0	0	0	0	NA
Application Software Products	106	33	142	177	223	280	351	439	25
Mainframe	27	20	33	38	44	52	60	68	16
Minicomputer	18	13	21	23	26	30	32	35	11
Workstation/PC	61	46	88	116	152	199	259	336	31
Turnkey Systems	143	4	149	157	165	172	178	184	4
Systems Integration	0	NA	0	0	0	0	0	0	NA
Professional Services	0	NA	0	0	0	0	0	0	NA

ET-B

Appendix: Profiles

COMPANY PROFILE

APPLIED LEARNING INTERNATIONAL, INC.
1751 West Diehl Road
Naperville, IL 60540-9075
(312) 369-3000

H. David Bright, Acting President and CEO
Subsidiary of National Education Corporation
Total Employees: 1,300
Total Revenue, Fiscal Year End 12/31/87: $180,000,000*
*INPUT estimate

The Company

Applied Learning International, Inc. (ALI), a subsidiary of National Education Corporation (NEC), considers itself to be the largest dedicated education and training provider for information processing, technology management, end-user computing, and human resource development topics to industry and government markets. ALI's training delivery modes include interactive video instruction, computer-based training, instructor-led, and linear video instruction.

- ALI was formed in December 1987 with the merger of the DELTAK Training Corporation and Advanced Systems, Inc. The resultant company was renamed Applied Learning International.
    - DELTAK was acquired by NEC in May 1986.
    - Advanced Systems was acquired by NEC in December 1987 in a pooling-of-interests transaction. NEC exchanged 1.625 shares of its common stock for each share of Advanced Systems' common stock, for a total of approximately 9.5 million shares. Advanced Systems had revenue of about $83.5 million for calendar 1987.
- In October 1988, ALI announced the formation of the Management Skills Division. This new division will focus on providing training in management skills and other human resource topics.

The combined 1987 revenue of DELTAK and Advanced Systems, Inc. is estimated by INPUT to be approximately $180 million. ALI projects 1988 revenue will exceed $200 million.

Key Products and Services

ALI's library of over 7,000 course offerings cover a variety of product areas as illustrated in the following exhibit.

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EXHIBIT

APPLIED LEARNING INTERNATIONAL KEY PRODUCT AREAS

PRODUCT AREA

Information Processing Professional Skills

- Entry Level and Programming
- Systems Analysis and Design
- MVS/SP/XA
- VM
- VSE
- System/38
- System/36
- DEC
- UNIX and "C"
- Data Base and 4GL
- DB2 and SQL
- IMS
- IDMS/R
- Data Comm/Networks
- CICS
- VS1
- Hewlett Packard

Technology Management

- Technology Options
- Business Impact/ Strategic Planning
- Implementation
- Managing the Environment
- Security and Controls

PRODUCT AREA

End User Computing

- Information Center Overview
- Computer Literacy
- Personal Computing
- Mainframe Computing
- Hardware-Specific Environments
- Office Systems

Human Resource Development

- Management and Supervisory
- Supervisory Skills
- Project Management
- Personal Skills
- Sales/Marketing
- Engineering Sciences

Manufacturing

- CIM
- MRP II
- Total Quality Commitment
- Just-In-Time
- People, Organization & Culture
- Purchasing
- Industrial Skills

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Industry Markets

ALI derives 100% of revenue from training and education to cross-industry markets.

ALI serves more than 7,000 clients in business and government, including over 90% of the Fortune 500 companies.

Geographic Markets

Approximately 69% of ALI's 1987 revenue was derived from the U.S., 6% from Canada, and 25% from other international sources.

ALI operates 49 North American offices from its headquarters in Naperville, and 26 international offices from headquarters in London.

Production and distribution centers are located in Chicago, Toronto, Stockholm, London, Hong Kong, Tokyo, Dusseldorf, Amsterdam, Sidney, Manila, and New Delhi.

Computer Hardware

ALI has the following computers installed at its Naperville offices in support of course development:

- IBM 3081 Dual Processor.
- IBM microcomputers and compatibles.
- Zenith microcomputers.

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COMPANY PROFILE

GOAL SYSTEMS INTERNATIONAL INC.
Goal Systems Building
5455 North High Street
Columbus, OH 43214
(614) 888-1775

Jim Rutherford, Chairman
Private Corporation
Total Employees: 275
Total Revenue, Fiscal Year End
1/31/88: $40,376,000

The Company

Goal Systems International Inc., founded in 1975 by Steven O'Donnell and incorporated in 1977, markets and supports a range of VM, MVS, and VSE software products for application development, security management, systems control, data center management and computer-based training (CBT). Goal Systems also provides professional services involving the development of custom courseware for computer-based training applications.

Revenue for fiscal 1988 was $40.4 million, a 53% increase over fiscal 1987 revenue of $29.2 million. Net income rose 52% from $3.9 million in fiscal 1987 to $5.9 million in fiscal 1988. A five-year financial summary follows:

GOAL SYSTEMS INTERNATIONAL INC.
FIVE-YEAR FINANCIAL SUMMARY
($ thousands)

	FISCAL YEAR				
ITEM	1/88	1/87	1/86	1/85	1/84
Revenue	$40,376	$29,231	$17,553	$13,295	$10,197
• Percent increase from previous year	38%	67%	32%	30%	108%
Income before taxes	$9,850	$7,154	$4,045	$4,382	$3,495
• Percent increase (decrease) from previous year	38%	77%	(8%)	25%	1,314%
Net income	$5,920	$3,892	$2,607	$2,844	$2,209
• Percent increase (decrease) from previous year	52%	49%	(8%)	29%	967%

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Goal Systems' management attributes growth in revenue and net income to an expanding line of software products in the MVS and VM markets, as well as significant growth in the CBT market segment.

Key Products and Services

One hundred percent of Goal Systems' fiscal 1988 revenue was derived from the sale of software packages and related services.

- Goal Systems' software products are on-line and run on IBM and compatible mainframes.
- Over 14,000 products are installed worldwide.

Goal Systems' products are divided into four strategic product groups: System Management Utilities, Application Development Systems, Computer Security, and Computer-Based Training.

The company's primary training product, PHOENIX, generated over 25% of fiscal 1988 total revenue. PHOENIX, developed at Ohio State University and acquired by Goal Systems in 1978 and released in 1980, is a computer-based training (CBT) applications development tool that enables users to develop the basic framework for instructional courses.

- During 1988 much of the growth in PHOENIX was tied to the new PC version.
- Goal Systems also provides customization services using PHOENIX.

Customer support for software packages includes a hotline services available from 8 a.m. to 10 p.m. (EST). All documentation updates, and maintenance releases are also provided.

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About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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